In the Claims:

1. (Currently Amended) An electrochemical cell having a solid cathode, an anode and an ionically conductive electrolyte activating the anode and the cathode, the improvement in the cathode comprising:

a) a substrate having opposed first and second major faces; and

b) a cathode active material provided as a physical vapor deposited layer coated on both of the first and second major faces of the substrate.

2. (Original) The electrochemical cell of claim 1 wherein the substrate is flexible.

3. (Original) The electrochemical cell of claim 1 wherein the substrate is selected from the group consisting of titanium, stainless steel, nickel, tantalum, platinum, aluminum, gold, and mixtures thereof.

4. (Original) The electrochemical cell of claim 1 wherein the cathode active material is selected from the group consisting of a metal, a metal oxide, a mixed metal oxide, a metal sulfide, a carbonaceous material, and mixtures thereof.

5. (Original) The electrochemical cell of claim 1 wherein the cathode active material is selected from the group consisting of silver vanadium oxide, copper silver vanadium oxide, manganese dioxide, titanium disulfide, copper oxide, chromium oxide, copper sulfide, iron sulfide, iron disulfide, cobalt oxide, nickel oxide, carbon, fluorinated carbon, and mixtures thereof.

6. (Original) The electrochemical cell of claim 1 wherein the anode comprises a Group IA metal.

7. (Original) The electrochemical cell of claim 1 wherein the anode comprises lithium.

8. (Original) The electrochemical cell of claim 1 wherein the electrolyte solution operatively associated with the anode and the cathode comprises an ion-forming alkali metal salt dissolved in a nonaqueous solvent, wherein the alkali metal of the salt is the same as the alkali metal comprising the anode.

9. (Original) The electrochemical cell of claim 8 wherein the alkali metal of the anode comprises lithium and the ion-forming alkali metal salt is selected from the group consisting of $LiPF_6$, $LiAsF_6$, $LiSbF_6$, $LiNO_3$ $LiBF_4$, $LiClO_4$, $LiAlCl_4$, $LiGaCl_4$, $LiC(SO_2CF_3)_3$, LiO_2, $LiN(SO_2CF_3)_2$, LiSCN, $LiO_3SCF_2CF_3$, $LiC_6F_5SO_3$, LiO_2CCF_3, $LiSO_3F$, $LiB(C_6H_5)_4$, $LiCF_3SO_3$, and mixtures thereof.

10. (Original) The electrochemical cell of claim 8 wherein the nonaqueous solvent comprises at least one organic solvent selected from the group consisting of tetrahydrofuran, methyl acetate, diglyme, triglyme, tetraglyme, dimethyl carbonate, 1,2-dimethoxyethane, 1,2-diethoxyethane, 1-ethoxy,2-methoxyethane, diethyl carbonate, acetonitrile, dimethyl sulfoxide, dimethyl formamide, dimethyl acetamide, propylene carbonate, ethylene carbonate, γ-valerolactone, γ-butyrolactone, N-methyl-pyrrolidinone, and mixtures thereof.

11. (Original) The electrochemical cell of claim 1 wherein a separator is provided between the anode and the cathode to prevent internal short circuit contact between them.

12. (Original) The electrochemical cell of claim 1 housed in a conductive casing comprising a material selected from the group consisting of titanium, stainless steel, mild steel, nickel, nickel-plated mild steel and aluminum.

13. (Original) The electrochemical cell of claim 1 wherein the anode comprises lithium anode active material in electrical contact with a nickel current collector and the cathode comprises silver vanadium oxide active material in electrical contact with a titanium current collector and wherein the anode and the cathode are activated with the electrolyte solution comprising 1.0M $LiAsF_6$ in a 50:50 mixture, by volume, of propylene carbonate and 1,2-dimethoxyethane.

14. (Original) The electrochemical cell of claim 1 wherein the coating of the cathode active material is characterized as a physical vapor deposition product having a thickness of from about 0.001 inches to about 0.4 inches.

15. (Original) The electrochemical cell of claim 1 wherein the substrate has been cleaned and provided with a roughened surface texture prior to contact with the coating.

16. (Original) The electrochemical cell of claim 1 wherein the substrate is perforated.

17. (Currently Amended) The electrochemical cell of claim 16 wherein the ~~perforated substrate supports cathode active material~~ physical vapor deposited cathode active material ~~onto~~ provided on both of the first and second major faces of the current collector is locked to each other ~~its sides to lock the cathode active material onto the substrate~~ through the perforations

18. (Original) The electrochemical cell of claim 1 wherein the anode comprises lithium, the cathode comprises silver vanadium oxide as the cathode active material physical vapor deposited onto the substrate comprising titanium and the electrolyte comprises $LiPF_6$ dissolved in an organic solvent.

19. (Currently Amended) A secondary electrochemical cell, which comprises:

a) a casing;

b) a negative electrode comprising a negative electrode active material which intercalates lithium;

c) a positive electrode comprising a positive electrode active material provided as a physical vapor deposited layer coated on opposed first and second major faces of a substrate, wherein the positive electrode active material is selected from the group consisting of lithiated oxides, lithiated sulfides, lithiated selenides and lithiated tellurides of at least one selected from the group consisting of vanadium, titanium, chromium, copper,

tin, molybdenum, niobium, iron, nickel, cobalt, manganese, and mixtures thereof; and

d) an electrolyte activating the negative and positive electrodes housed in the casing.

20. (Currently Amended) A cathode of an electrochemical cell, which comprises:

a) a substrate of electrically conductive material having opposed first and second major faces; and

b) a ~~layer of~~ cathode active material supported on both of the first and second major faces of the substrate, wherein the layer of cathode active material is characterized as having been deposited onto the substrate by a physical vapor deposition coating process.

21. (Original) The cathode of claim 20 wherein the substrate is flexible.

22. (Original) The cathode of claim 20 wherein the substrate comprises titanium or aluminum or mixtures thereof.

23. (Original) The cathode of claim 20 wherein the cathode active material is selected from the group consisting of a metal, a metal oxide, a mixed metal oxide, a metal sulfide, a carbonaceous material, and mixtures thereof.

24. (Original) The cathode of claims 20 wherein the cathode active material is selected from the group

consisting of silver vanadium oxide, copper silver vanadium oxide, manganese dioxide, titanium disulfide, copper oxide, chromium oxide, copper sulfide, iron sulfide, iron disulfide, cobalt oxide, nickel oxide, carbon, fluorinated carbon, and mixtures thereof.

25. (Original) The cathode of claim 20 wherein the coating of the cathode active material is characterized as a physical vapor deposition product having a thickness of from about 0.001 inches to about 0.4 inches.

26. (Original) The cathode of claim 20 wherein the substrate has been cleaned and provided with a roughened surface texture prior to contact with the layer of cathode active material.

27. (Original) The cathode of claim 20 wherein the substrate is perforated.

28. (Currently Amended) The cathode of claim 27 wherein the ~~perforated substrate supports cathode active material~~ physical vapor deposited cathode active material provided on ~~onto~~ both of the first and second major faces of the current collector is locked to each other ~~its sides to lock the cathode active material onto the substrate~~ through the perforations.